



UNITED STATES PATENT AND TRADEMARK OFFICE

GB

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,087	02/22/2002	Futoshi Tanigawa	10059-406US (P27064-01)	2369
570	7590	02/25/2004	EXAMINER	
AKIN GUMP STRAUSS HAUER & FELD L.L.P. ONE COMMERCE SQUARE 2005 MARKET STREET, SUITE 2200 PHILADELPHIA, PA 19103-7013			YUAN, DAH WEI D	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 02/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/081,087

Applicant(s)

TANIGAWA ET AL.

Examiner

Dah-Wei D. Yuan

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/2/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1745

**POSITIVE ELECTRODE ACTIVE MATERIAL, FOR ALKALINE STORAGE
BATTERY, POSITIVE ELECTRODE USING THE SAME AND METHOD OF
PRODUCING THE SAME**

Examiner: Yuan

S.N. 10/081,087

Art Unit: 1745

February 13, 2004

Detailed Action

1. The Applicant's amendment filed on January 2, 2004 was received. Claim 6 was amended.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action issued on September 30, 2003.

Claim Objections

3. The claim objections on claim 6 are withdrawn, because the claim has been amended.

Claim Rejections - 35 USC § 102

4. The claim rejections under 35 U.S.C.102(e) on claims 1-8 as being anticipated by Hayashi et al. (US 6,358,648 B2) are maintained. The rejection is repeated below for convenience.

With respect to claims 1,3,4,6,7, Hayashi et al. teach a nickel electrode active material for alkaline storage batteries comprising nickel hydroxide. Spherical powders, i.e., mean particle circularity is equivalent to 1, of solid solute nickel hydroxide incorporating therein one or two elements selected from the group consisting of cobalt, cadmium, zinc and magnesium are produced. The mean particle size of the resulting powder is reported to be about 10 μm . Hayashi

Art Unit: 1745

et al. further teach that the resulting nickel hydroxide particles have better crystal growth and more homogeneous crystal along certain crystal plane than conventional nickel hydroxide. As a result, the decreases in the number of disordered crystals suggest uniform progress of charge reaction of nickel hydroxide to nickel oxyhydroxide. Thus, the positive electrode active material would invariably comprise nickel oxyhydroxide upon charging the battery. See Abstract, Column 3, Lines 51-67; Column 4, Lines 39-51; Column 6, Lines 39-46. Moreover, it is the position of the examiner that other properties of said material, such as BET surface area, particle size distribution and full width at half maximum of a particular crystallographic orientation, are inherent, given that the positive electrode active material disclosed by Hayashi et al. and the present application having similar chemistry and manufacturing procedures. A reference which is silent about a claimed invention's features is inherently anticipatory if the missing feature is necessarily present in that which is described in the reference. Inherency is not established by probabilities or possibilities. In re Robertson, 49 USPQ2d 1949 (1999). Applicant is advised to submit other information with respect to the Hayashi's positive electrode active material, if it is shown to be patentably distinct from the instant invention.

With respect to claim 2, Hayashi et al. teach the solid solution nickel hydroxide powders are produced by dissolving a sulfate of one or two elements, including cobalt, cadmium, zinc and magnesium, in the nickel sulfate solution. Therefore, the resulting positive electrode active material would have a cobalt compound on a portion of the surface. See Column 6, Lines 37-46.

With respect to claim 5, Hayashi et al. teach the solid solution nickel hydroxide powers are spherical. Therefore, essentially all the powers have a circularity of 1. See Column 6, Lines 37-38.

With respect to claim 8, Hayashi et al. teach the positive electrode active material is first mixed with a cobalt powder, a cobalt hydroxide powder and a zinc oxide powder. Water is then added to the mixture and kneaded to make a paste, which is filled onto a foamed porous nickel substrate. See Column 5, Lines 11-20.

5. The claim rejections under 35 U.S.C.102(e) on claims 1-8 as being anticipated by Kato et al. (US 6,083,642) are maintained. The rejection is repeated below for convenience.

With respect to claims, 1-4,6,7, Kato et al. disclose a positive electrode material for an alkaline storage battery. The active material comprises nickel hydroxide particles and a higher cobalt oxide (γ -cobalt oxyhydroxide). The positive electrode material is prepared by coating the surface of nickel hydroxide particles with the higher cobalt oxide. The nickel hydroxide particles are a solid solution material with one or more metallic element other than nickel, including cobalt, cadmium, and zinc. The solid solution nickel hydroxide particles with the cobalt oxide coating have an average particle diameter of 5 to 20 μm and a BET specific surface area of 5 to 12 m^2/g . In one embodiment, an aqueous solution containing nickel sulfate as the main component and cobalt sulfate and zinc sulfate are mixed. An aqueous sodium hydroxide solution is slowly added dropwise while adjusting the pH of the solution with an aqueous ammonia, thereby to deposit spherical solid solution nickel hydroxide particles, i.e., the

Art Unit: 1745

circularity of the particles is 1. Also, Kato et al. reveal the presence of nickel oxyhydroxide in the positive electrode active material based on the X-ray diffraction and the spectral calorimeter studies. See Abstract, Column 4, Lines 22-42; 66 to Column 5, Line 5; Column 11, Lines 50-65; Column 6, Lines 39-46; Column 13, Lines 26-45; Column 29, Lines 1-12. Moreover, it is the position of the examiner that other properties of said material, such as particle size distribution and full width at half maximum of a particular crystallographic orientation, are inherent, given that the positive electrode active material disclosed by Kato et al. and the present application having similar chemistry and manufacturing procedures. A reference which is silent about a claimed invention's features is inherently anticipatory if the missing feature is necessarily present in that which is described in the reference. Inherency is not established by probabilities or possibilities. In re Robertson, 49 USPQ2d 1949 (1999). Applicant is advised to submit other information with respect to the Kato's positive electrode active material, if it is shown to be patentably distinct from the instant invention.

With respect to claim 5, Hayashi et al. teach the solid solution nickel hydroxide powers are spherical. Therefore, essentially all the powers have a circularity of 1. See Column 11, Lines 50-65.

With respect to claim 8, Hayashi et al. teach the positive electrode active material is first mixed with a cobalt powder, a cobalt hydroxide powder and a zinc oxide powder. Water is then added to the mixture and kneaded to make a paste, which is filled onto a foamed porous nickel substrate. See Column 11, Line 66 to Column 12, Line 10.

Response to Arguments

6. Applicant's arguments filed on January 2, 2004 have been fully considered but they are not persuasive.

Applicant's principle arguments are

(a) Applicant concedes that there are similarities among the production methods described in the instant disclosure, Hayashi, and Kato references. However, the reaction conditions in the cited references are different from those in the present application. It leads to powders of different physical characteristics;

(b) it is difficult to obtain a mean circularity value of nickel hydroxide powder equivalent to 1.

In response to Applicant's arguments, please consider the following comments.

(a) Applicant suggests that it is reasonable to assume the active materials produced by Hayashi and Kato are comparable to that of Comparative Example 1 in the present application. Procedures in Comparative example 1 are, therefore, treated as a general practice to make the positive electrode active material. Based on the summary tabulated by the Applicant (See Applicant's reply, page 8), two notable differences in the processing parameters are observed, i.e., the starting temperature of the sulfate solution (which is undisclosed in the Comparative Example 1) and the degree of stirring. Examiner believes the stirring rate for the material in Example 1 should be interpreted as "moderate" as opposed to "done" in the table, because the

stirring rate in the Comparative Example is half of that in the solution of Example 1. See instant disclosure, pages 24,25. Since the solution temperature in Comparative Example 1 is unclear, it would not be unreasonable to suggest that the temperature is close to room temperatures, namely 20-25°C. Furthermore, it can be assured that the starting temperature of the solutions would be of little significance, since the reaction vessel temperatures of the three examples are all kept at 35°C. This leads to the conclusion that the only result effective variable is the rate of stirring in the reaction vessel. The instant specification fails to quantitatively state the rate of agitation in the reaction solution, instead it merely recites the stirring rate is increased for the aqueous solution of sodium hydroxide in Example 2 as compared to Example 1 and the stirring rate in Comparative Example 1 is half of that used in the Example 1. Among the three powders, the resulting particle size, specific surface area, FWHM and (001)/(101) ratio all fall within the ranges recited in claims 1 and 8. Circularity is 0.95, 0.96 and 0.94 for powders produced in Example 1, Example 2 and Comparative Example 1, respectively. Only the powder in Example 2 meets the remaining limitation, i.e., a mean particle circularity from not smaller than 0.95 to not larger than 1. The difference in circularity among the three powders would be statistically indistinguishable if one might consider addressing the standard deviation in the measurement. Further examination of the images of particles in Figures 3 and 4 of instant specification reveals substantial variations, such as shapes and aspect ratio, in the oxide particles. It is, therefore, concluded that the physical properties of the respective powders are very similar and the claimed physical properties are inherent in the powder prepared by the conventional practice;

(b) Hayashi et al. disclose the resulting nickel hydroxide powder is sphere having a mean particle size of about 10 μm . See Column 4, Lines 50-52. Kato et al. teach the formation of a spherical solid solution nickel hydroxide particle with an average particle diameter of 10 μm . Since Hayashi, Kato and the instant disclosure utilize similar starting materials and processing procedures, physical properties of the powders of interest would be inherent as presented in the paragraphs above.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Art Unit: 1745

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (571) 272-1295. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dah-Wei D. Yuan
February 13, 2004

A handwritten signature in cursive script, appearing to read "Dah-Wei D. Yuan", followed by a long horizontal flourish.